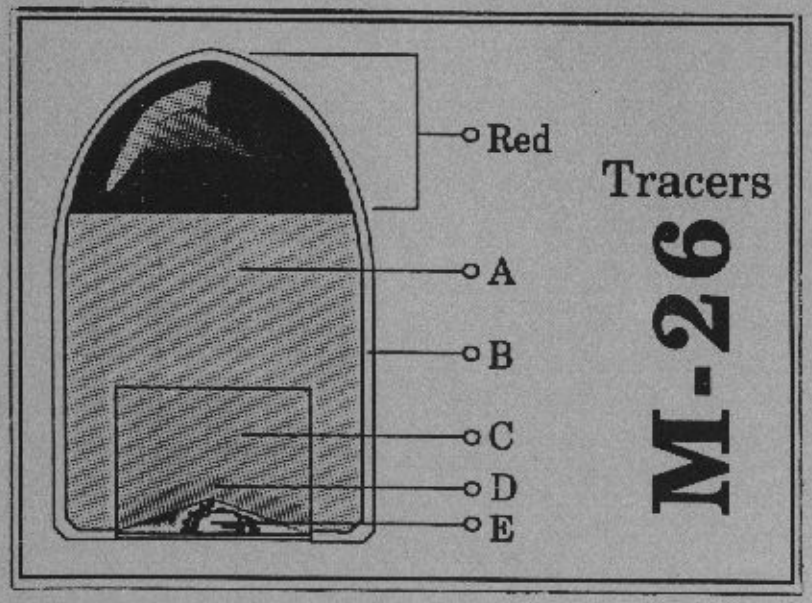
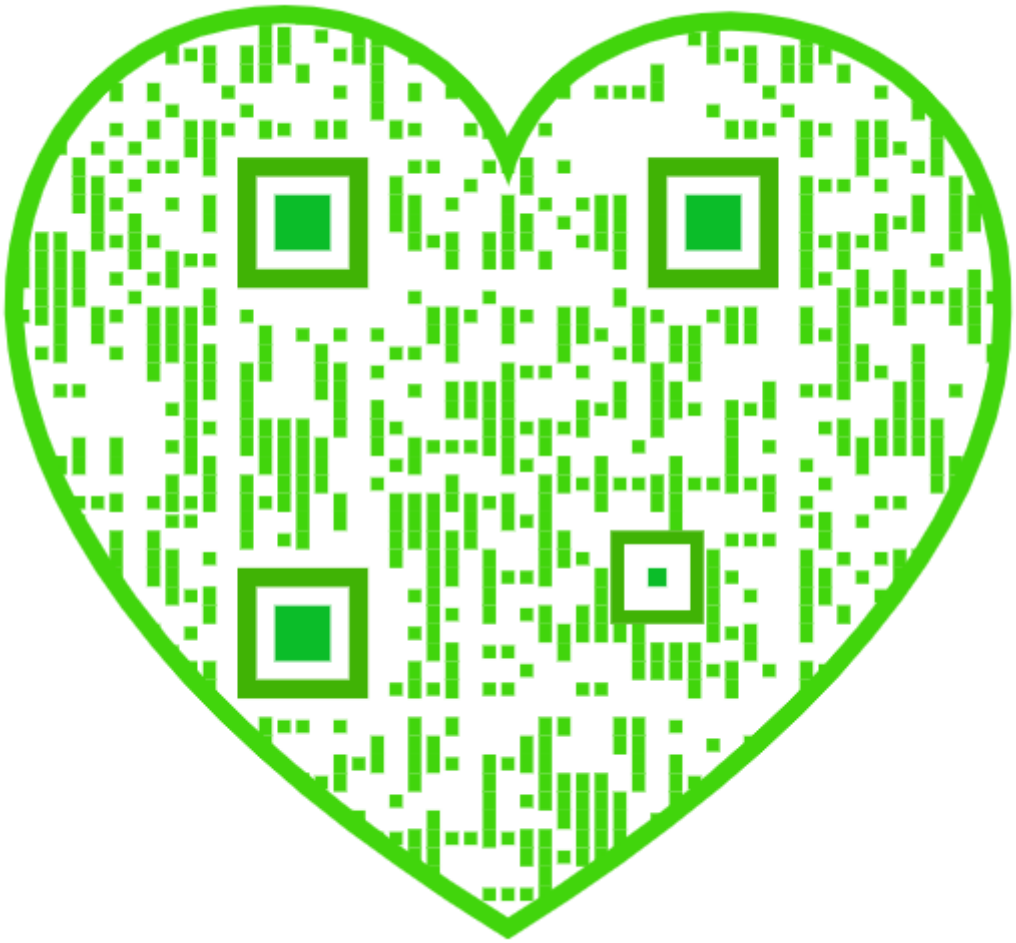
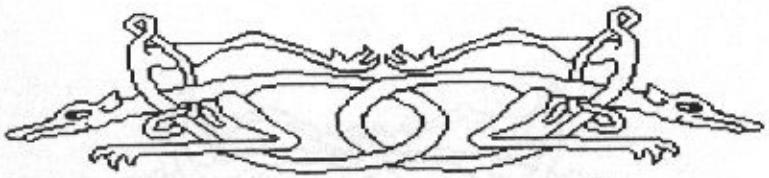
THE PRIVATE WEAPONEER

TRACERS "N" STUFF







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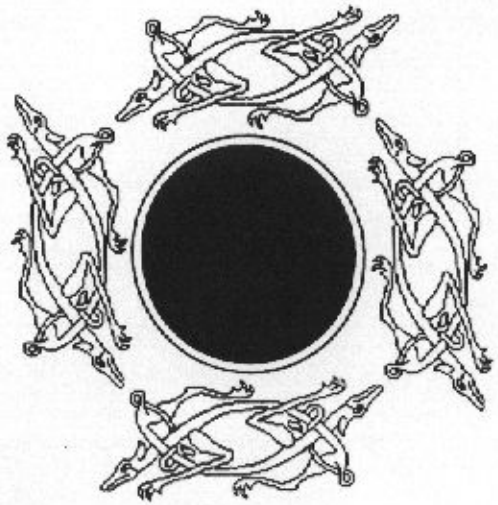
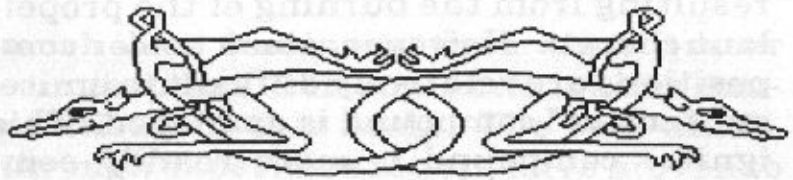


While I cannot take all the credit for the invaluable information contained in these pages, I did do all of the typesetting and illustrations. So, while you peruse these pages, the appropriate "OOH's and AHHH's" are in order. If you do not "OOOH and AHHH", your Tracers & Stuff book will self-destruct.



CHAPTER 1

Tracer Key

For those of you who may be totally unfamiliar with tracer ammunition, I will give a brief description of its use and function.

Small arms tracers are used to determine range and direction of fire. This is accomplished by a burning pellet pressed into a cavity in the base of the projectile. This burning pellet produces a brilliant light (usually red) which allows the gunner to observe the bullet in flight.

The tracer/igniter composite pellets are formed by compressing the two compounds under pressures of 30,000 to 150,000 PSI. This high compression is necessary so that the pellet can withstand the several thousand pounds of chamber pressure which occur when the bullet is fired.

The pellet is ignited by the hot gases

resulting from the burning of the propellant charge. However, since tracer compositions are relatively difficult to ignite, an "igniter" compound is employed. This igniter compound is more readily combustible than the tracer compound and acts to facilitate more reliable functioning of the finished product. This is usually accomplished by first loading the tracer compound into the press, and then adding a small amount of igniter compound on top of the tracer compound, and finally using a stepped or conical shaped ram to present a greater surface area. If you are having a bit of trouble visualizing all of this at this point, don't worry. It will all make sense in the pages to come. Both tracer and igniter compounds are classified as "pyrotechnic compositions" due to their make-up and their production of light when burned.

Tracer Compositions

In this chapter I will list tracer compounds which produce red, white, green and amber colored light. Cool, huh?

Igniter Compositions

Igniter compounds, used in conjuction with tracer compounds, are designed to have a much lower ignition temperature or "flash point", and also to produce very little gas. This latter feature makes them much less luminous than their tracer counterparts. I list only two igniter compositions in this book. The two which, through experimentation, have proven to be the most effective and reliable.

Now we begin. The procedures listed on the following pages are going to require patience, work, patience, commitment, patience and probably a little capital outlay. This CAN be done! I guess this is where we separate the do'ers from the talkers.

Tracer Compound Formulas

(all parts by weight, powder scale may be used)

RED #1

Strontium Nitrate.....50 parts
Shellac (powdered).....10 parts
Magnesium Powder.....30 parts

(all Magnesium 80-100 mesh)

RED #2 (Special Red)

Same as RED #1 except 10 (ten) grains of Hexachlorethane is added per 50 (fifty) grains of RED #1. Note: RED #2 burns slower, not quite as bright but with a deeper red color. Good for long range applications.

GREEN #1
Barium Nitrate.....50 parts
Shellac (powdered).....10 parts
Magnesium powder.....35 parts
(remember, 80-100 mesh)

GREEN #2 (Special Green)
Same as GREEN #1 except 20 (twenty) grains of Hexachlorethane is added per 100 (one hundred) grains of GREEN #1. Note: Like RED #2 , GREEN #2 burns slower and not quite as bright, but has a very deep green color. Very good for green or green/red tracers.

WHITE #1
Magnesium Powder.....35 parts
Strontium Nitrate.....32 parts
Barium Peroxide.....31 parts
Shellac (powdered).....2 parts

AMBER #1
Magnesium Powder.....12 parts
Barium Peroxide.....87 parts
Shellac (powdered).....2 parts

Note: This is actually an "all igniter" compound being used as a tracer. It produces a bright amber colored light and has the advantage of not requiring a separate igniter to function.

Igniter Compound Formulas

IGNITER #1
Magnesium Powder.....17 parts
Barium Peroxide.....81 parts
Shellac (powdered).....2 parts

Note: This is a standard igniter mixture that is best used with green, white and amber tracers.

IGNITER #2 (Special Igniter)
Same as IGNITER #1 except 3 (three) grains of Red Phosphorus powder are added to 100 (one hundred) grains of IGNITER #1. *(See Note on next page)*

Note: This is a very reliable ignition mixture, possessing a much lower ignition temperature or "flash point" than IGNITER #1. It is best used with red tracers and cannot be used with green tracers due to the incompatibility of Red Phosphorus with Barium Nitrate. It will cause green tracer compounds to explode under high chamber pressures. It also has the disadvantage of being less stable during the pressure forming process of the pellet described later in this book. Again, it is a good ignition mixture for red tracers and, in fact, makes them almost 100% reliable. This is not even achieved by military tracer ammo!

Helpful Hints:

[1] Strontium Nitrate can be extracted from road flares. Break up a flare and soak the material in very hot water. This dissolves the Strontium Nitrate. Pass the liquid through coffee filters until it runs clear. The liquid can then be evaporated and the Strontium Nitrate obtained. It is difficult to get the Strontium Nitrate completely dry. Small quantities can be dried in a microwave oven (when the wife is not home).

[2] All chemicals used in these mixtures must be pulverized and sifted to as fine a powder as can possibly be obtained.

[3] Mix all chemicals using the "wet method". This is accomplished by throwing all ingredients into a crucible and adding enough denatured alchohol to get it all kinda runny wet. Then mix it all up and let the alchohol evaporate. Voilá!

[4] As mentioned earlier the mixture can be dried in a microwave oven, but this poses the obvious hazards and should only be undertaken by the stout hearted and then only when the wife is not home. This will allow you ample time to make up a good line to explain why the microwave is melted to the linoleum countertop.

[5] All the listed chemicals can be purchased from chemical supply houses by mail order. Merrel Scientific, 1665 Buffalo Rd., Rochester, N.Y., 14624, is a good source. Ask for one of their catalogs.

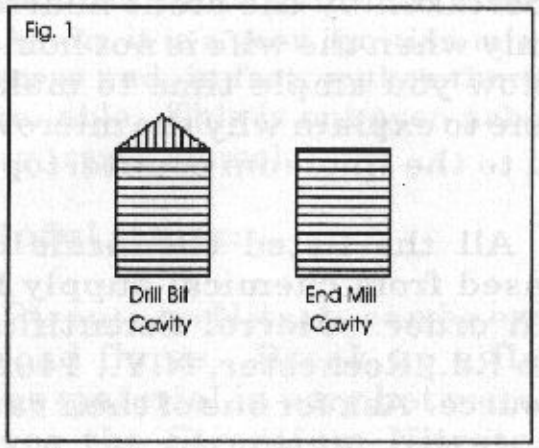
[6] These mixtures do not have to be made up in large quantities. A few ounces of tracer compound and an ounce or two of igniter compound will go a long way.

Bullets:

Just about any bullet can be made into a tracer bullet. FMJ's are probably the best, but even soft cast lead bullets will do the trick. The following instructions are based on the 9mm/.38 special, but can be

readily adapted to just about any other caliber with a little trial and error and common sense.

You must have a drill press (table model will do) with a chuck capable of holding the bullet and a means of centering a drill bit or a small end mill bit. End mill bits work better because they drill a 'square' hole. *See fig. 1.*



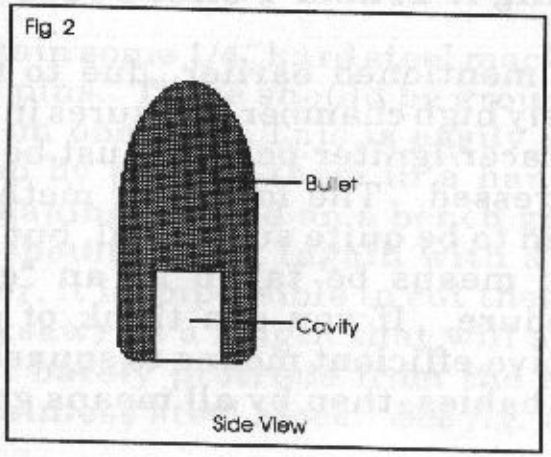
Put the bullet in the press chuck, base down. By using a milling table attached to the base of your drill press, it is very easy to line up the bit (refer to page 14). This, of course, can be done without a milling table, but it is more difficult.

Note: If you try to drill the holes in the bullets with a hand drill, it is IMPOSSIBLE to line them up correctly, and the

resulting imbalance will cause the bullet to be very erratic in flight. So don't even think about it, PAL!

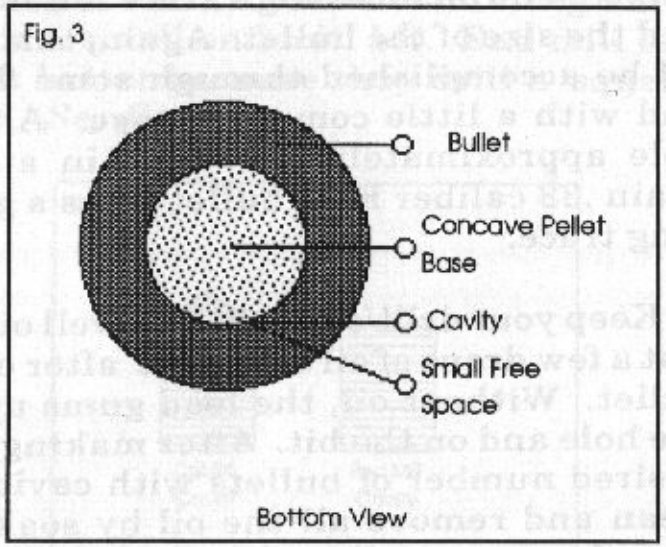
Once everything is lined up and adjusted, you will be able to drill dead centered hole to the desired depth. The depth will depend on how long a trace is desired and the size of the bullet. Again, this can all be accomplished through some T&E and with a little common sense. A 1/4" hole approximately 3/8" deep in a 170 grain .38 caliber FMJ bullet gives a good long trace.

Keep your drill/end mill bits well oiled. Put a few drops of oil on the *bit* after each bullet. Without oil, the lead gums up in the hole and on the bit. After making the desired number of bullets with cavities, clean and remove all the oil by soaking them in acetone. *You should end up with bullets that look like the one in fig. 2.*



The cavities should be made with bits that are slightly larger than 1/4" (or using a 1/4" bit that is slightly off center will suffice). The 1/4" tracer pellet should fit into the cavity with a small amount of 'play'. *See fig. 3*

Fig. 3

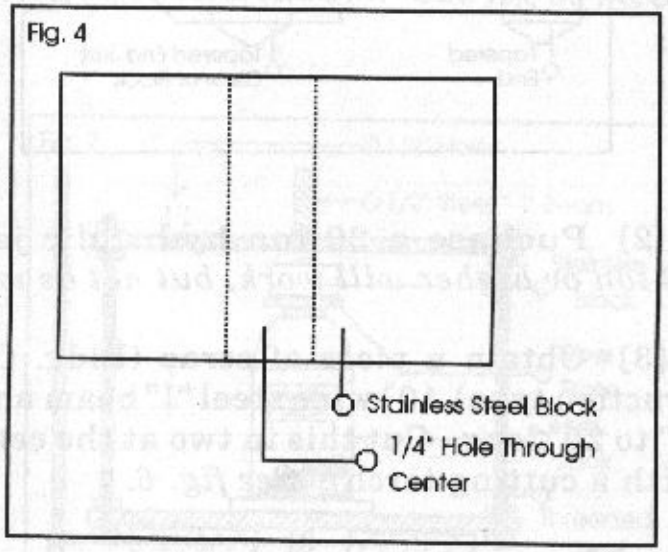


Making A Tracer Pellet Press Block:

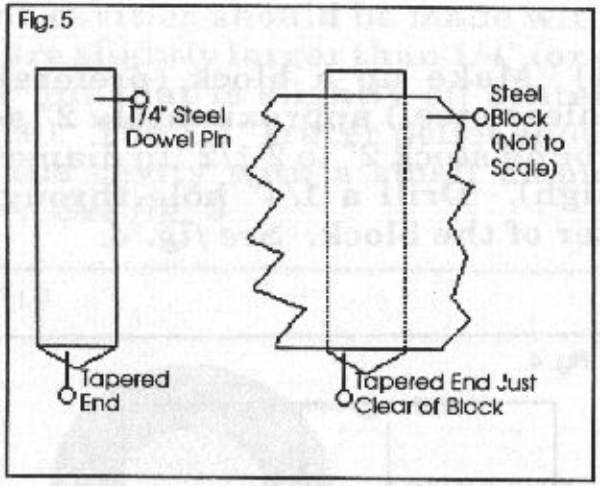
As mentioned earlier, due to the extremely high chamber pressures involved, the tracer/igniter pellets must be highly compressed. The following method has proven to be quite successful, but should by no means be taken as an "end-all" procedure. If you can think of a more effective.efficient means to squash these little babies, then by all means go for it!

[1] Make up a block (preferably of stainless steel) approximately 2" square (or round stock 2" to 2 1/2" in diameter by 2" high). Drill a 1/4" hole through the center of the block. *See fig. 4.*

Fig. 4

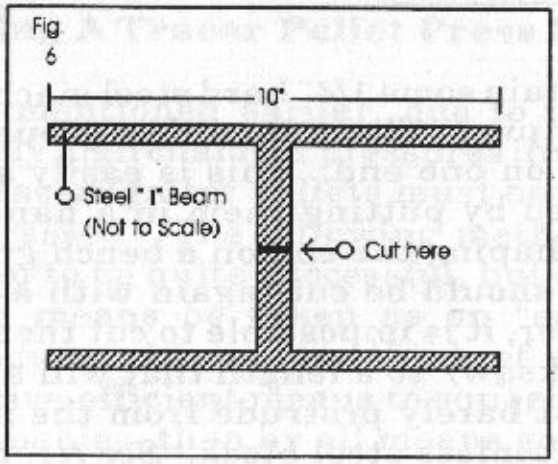


Obtain some 1/4" hard steel machinists dowel pins. These should be ground to a taper on one end. This is easily accomplished by putting them in a hand drill and shaping the end on a bench grinder. They should be cut (again with a bench grinder, it is impossible to cut them with a hacksaw) to a length that will allow it to just barely protrude from the hole in the stainless steel block. *See fig. 5.*

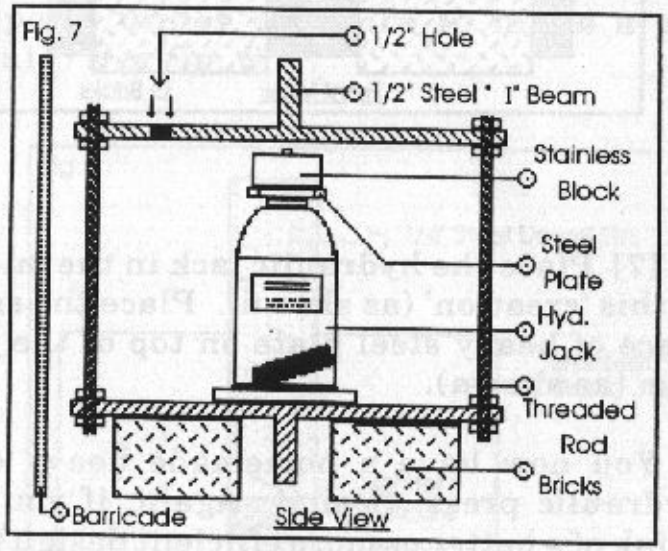


[2] Puchase a 20 ton hydraulic jack. *(12 ton or higher will work, but not as well)*

[3] Obtain a piece of scrap (Bldg. Construction type) 10" wide steel "I" beam about 15" to 20" long. Cut this in two at the center (with a cutting torch). *See fig. 6.*

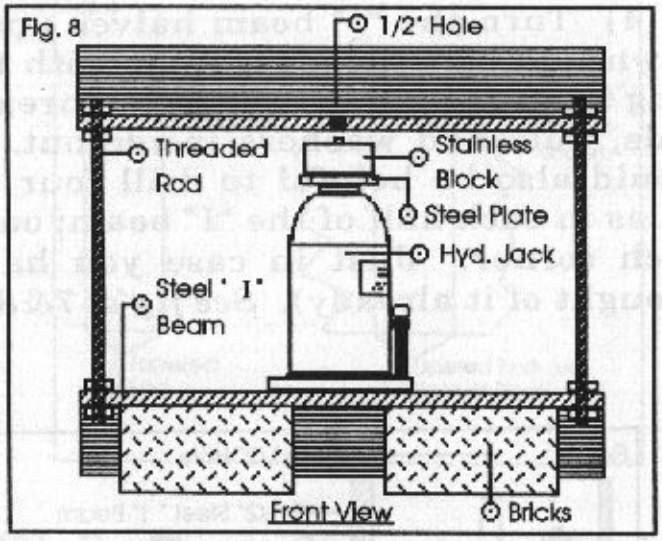


[4] Turn the "I" beam halves upside down and bolt them together with four long (approximately 18" X 1/2") threaded rods, nuts and washers inside out. (It would also be helpful to drill four 1/2" holes in each half of the "I" beam; one in each corner. Just in case you hadn't thought of it already). *See fig's. 7&8.*



[5] Obtain a small piece of heavy steel plate approximately 3" X 3" X 1/2".

[6] Drill a 1/2" hole in the front lip of the upper "I" beam half. *(shown in fig's. 7 & 8).*



[7] Place the hydraulic jack in the middle of this 'creation' (as shown). Place the small piece of heavy steel plate on top of the jack ram (as shown).

You now have a homemade heavy duty hydraulic press. Voilá! Again, if you can think of a better or more efficient design then by all means build that sucker!

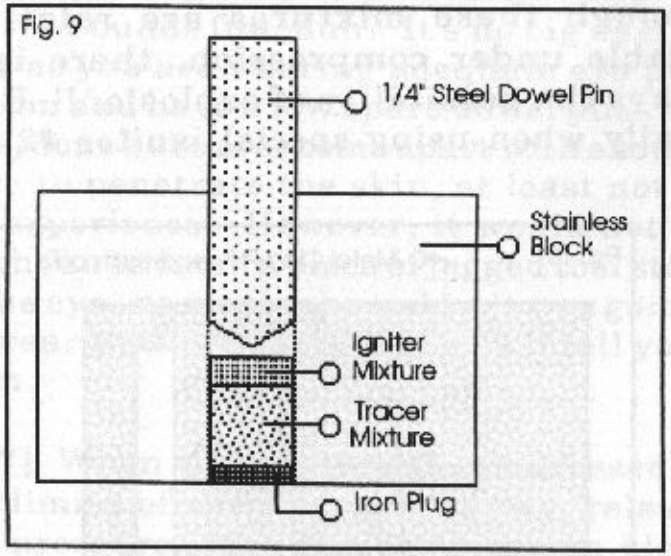
Making Tracer Pellets:

[1] Using the powder scale, measure out the desired amount of tracer mixture and put it in clean, empty shell cases or some other type of small container. (Generally 4 to 6

grains, but this figure must be adjusted according to the depth of the cavity)

[2] Weigh the desired amount of igniter mixture and put it in individual brass cases as well. (1.5 to 2 grains)

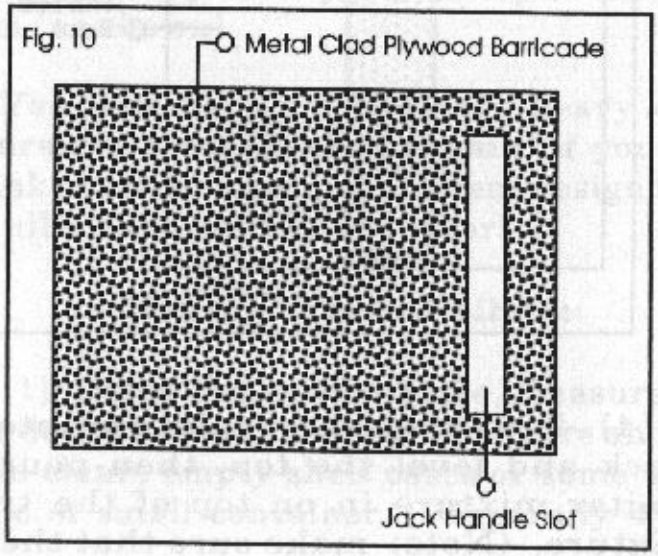
[3] The stainless steel block must be plugged at one end with a very short piece of 1/4" iron rod. (Iron rod is soft and will expand under pressure to make a good seal) *See fig. 9.*



[4] Pour the tracer mixture into the block and level the top, then pour the igniter mixture in on top of the tracer mixture. (Note: make sure that there is

no oil, grease or any other form of foreign material in the hole of the steel block. Contamination,especially oil and grease, can cause an explosion when compressed!)

[5] OK, now place all of this (fig. 9) onto the heavy steel plate on top of the jack ram. Now start jackin'! Compress the mixture to the capacity of the hydraulic jack. (Caution! You are compressing an oxidizer/fuel mixture! Be careful! Learn to trust your instincts and if something doesn't feel right, STOP! Back off and check all points before going on. Even though these mixtures are relatively stable under compression, there is always the possibility of explosion!! Especially when using special igniter #2 con-

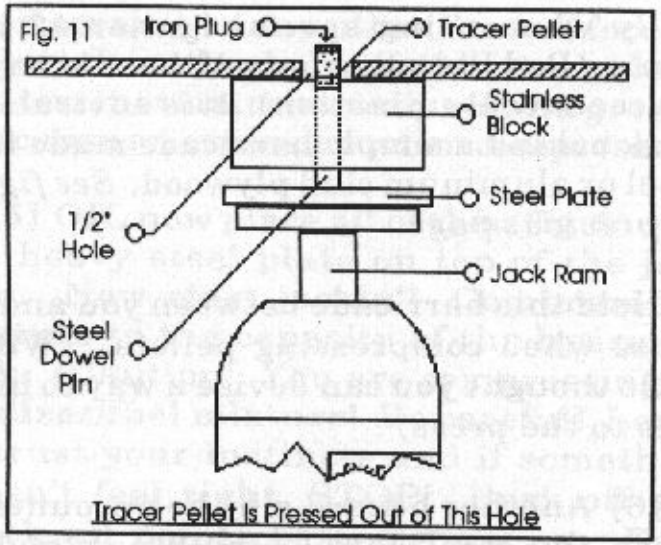


cially when using special igniter #2 containing Red Phosphorus or if there is any oil or grease contamination). It is advisable to work behind a simple barricade made from steel or aluminum clad plywood. *See fig. 10 on previous page.*

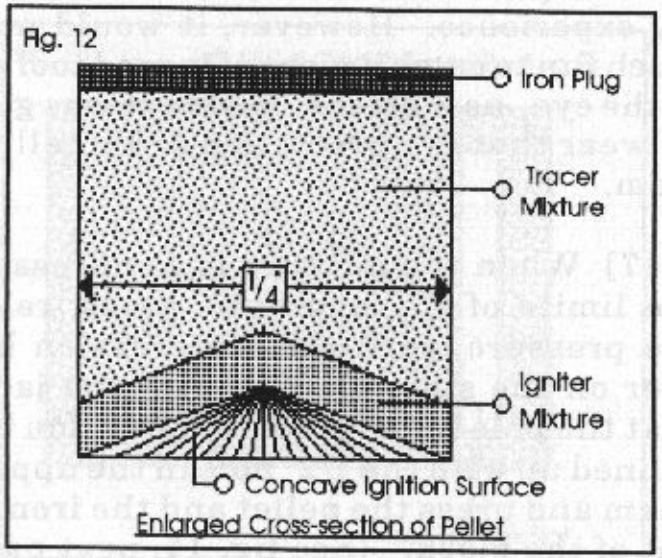
Hold this barricade between you and the press when compressing pellets. (With a little thought you can devise a way to hinge this to the press)

[6] Another hazard may be encountered when the steel dowel pins break and fly apart. Sounds fun, huh? It's no big deal as long as you are wearing adequate eye protection and have a few spare dowel pins. To date, none have ever come apart with enough force to penetrate the skin, at least not in my experience. However, it would not be much fun to catch a piece of jagged tool steel in the eye, no matter how slow it was going! So wear that eye protection or I'll tell your Mom.

[7] When the mixture is compressed to the limits of the hydraulic press, release the pressure, turn the compression block over on the steel plate, center the jack so that the hole in the steel compression block is lined up with the 1/2" hole in the upper "I" beam and press the pellet and the iron plug out of the block. (See fig. 11, next page)



[7] (cont.) You should end up with a finished pellet that looks like the one in *fig. 12.*



NOTE: After every pellet clean the hole in the compression block with a bore cleaning brush and a hand drill. (A .38 cal/9mm brush works nicely) Occasionally use a small amount of dishwashing soap as a lubricant. Then swab the hole out with a small piece of clean T-shirt or tissue. NEVER, NEVER, NEVER use oil or grease or any petroleum based product to clean the hole!!!

[8] After you have made up the desired amount of pellets, it is time to secure them into the previously prepared bullets.

[9] Prepare a small batch of Duro® E-Pox-E steel filler adhesive or similar epoxy product.

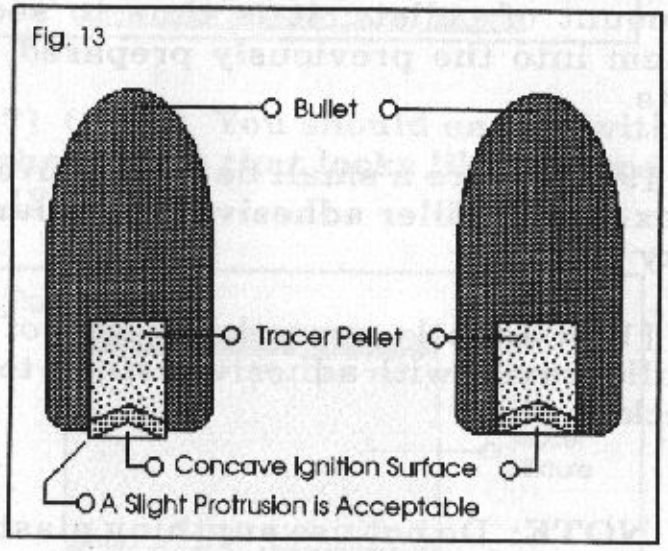
[10] Lightly coat the inside of the bullet cavity with adhesive using a toothpick or pin.

NOTE: Do not use anything plastic to apply adhesive as these might be dissolved by certain epoxy mixtures and could conceivably interfere with the chemical function of the tracer.

[11] Quickly press the tracer pellet into the cavity by hand, being careful to

seat the pellet fully *(see fig. 13)*. Remember, the bullet cavity should be slightly larger than the pellet, but only slightly. This will allow the adhesive to completely surround the pellet. Be careful not to allow the adhesive to come into contact with the concave ignition surface as this may effect the ignition process. Wipe off any excess adhesive and allow the finished bullet to set up in a cool, dry place for 48 hours.

Fig. 13



ANOTHER NOTE: DO NOT attempt to load any bullets before they are dry! If any epoxy gets between the bullet and the inside of the case neck, the resulting chamber pressures incurred by the case not releasing the bullet when it is fired can explode your weapon! Simply put, only a moron glues his bullets into his cases. Ever notice that you don't see any *old* gun toting morons? Also, if you do happen to get a successful fire from a wet bullet, the epoxy splatters the bore of your weapon and then gets baked on by gases in the 3500ºF to 5000ºF range. You'll have a mess that no bore solvent will touch! Comprendé?

[12] Load the tracer as you normally would. (Remember to re-weigh your bullets and to load for the new weight; a 115 grain FMJ 9mm weighs considerably less when outfitted with a tracer pellet).

[13] Mark the round in some way to distinguish it from ordinary rounds. (Military tracers have a red tip or ring).

EXAMPLES

9mm 125gr. FMJ (parabellum)

(Test #1) 4.8 grains of Red Tracer Mixture #2, along with 2.0 grains of Igniter Mixture #1. Concave ignition surface. Liquid Steel adhesive. Propellant charge was 5.0 grains of Unique® powder. Test results were very good.

Mixture #1, along with 1.5 grains of Special Igniter #2 (with Red Phosphorus). Concave ignition surface. Liquid Steel adhesive. Propellant charge was 5.0 grains of Unique® powder. Test results were excellent! Long range trace, 100% reliable.

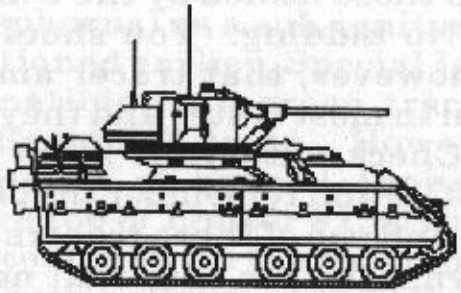
(Test #3) 6.0 grains of Special Green Tracer Mixture #2 (with Hexachloroethane), along with 1.5 grains of Igniter #1, plus 0.5 grains of Special Igniter #2 (with Red Phosphorus) as a sub-igniter. (Note: As I mentioned earlier, Special Igniter#2 is incompatible with green tracers containing Barium Nitrate. However, if a small amount of Special Igniter #2 is pressed on top of Igniter #1, it will not be in direct contact with the Barium Nitrate in the tracer pellet and it will function very well. It even makes for a *more* reliable ignition procedure). Test results were excellent. Deep green, long range trace. 100% reliable.

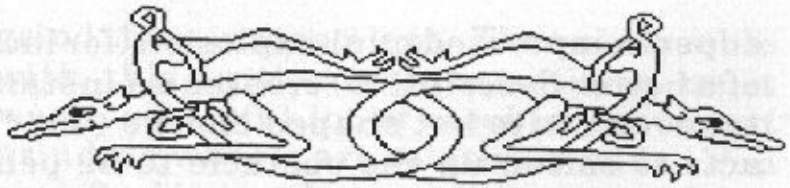
(Test #4) 3.0 grains of Special Red Tracer Mixture #2, along with 3.0 grains of Special Green Tracer Mixture #2, along with 1.5 grains of Igniter #1, and lastly 0.5 grains of Special Igniter #2 as a sub-igniter. Concave ignition surface. Liquid Steel adhesive. Propellant charge was 5.0 grains of Unique® powder. Test results were excellent. Deep green turning to bright red, long range trace. 100% reliable.

So there you have it, gang. The combinations of colors, igniters and tracer mixtures are limited only by your imagination and experimentation. So go to it!

You now have a tracer equal to or better than those issued by the U.S. Government. No kidding. You should keep in mind, however, that tracer ammunition is illegal in most states and they <u>will</u> start fires. Check with your state and local authorities and remember that the manufacture and use of these tracers is done at your own risk. I'm sure that none of you would do anything illegal now, would you? Nah, I didn't think so. That would be *wrong!!!*

The information contained herein was designed to be used for educational purposes only. The writer bears no responsibility for the use of or for the damage incurred through the use of this information either directly or indirectly.





CHAPTER 2

Armor Piercing Incendiary Tracers

Just as the name would indicate, A.P.I.T. ammunition contains a tracer pellet in the base of the bullet (refer to 'Tracer Key' for procedure), a hard metal core, (usually Tungsten Carbide) called a "penetrator", surrounded by a "ballistic vehicle" (a specially prepared bullet), and a point filler of an impact sensitive incendiary material through which the "penetrator" must pass.

Upon impact the "ballistic vehicle" comes to a sudden halt, or at least slows considerably, and the "penetrator" begins to 'slide' toward the leading edge of the bullet. As it nears the tip of the vehicle the "penetrator" impacts the incendiary filler material, igniting it. This tiny explosion is confined in a very small space and is being compressed even as it is burning by the moving "penetrator". This

super-compressed mini-explosion (for lack of a better descriptive) creates an instantaneous white hot shaped charge (which acts to soften up the obstacle to be penetrated) behind which travels the "penetrator". The principal is basically the same as that of heating boiler plate before attempting to drill through it.

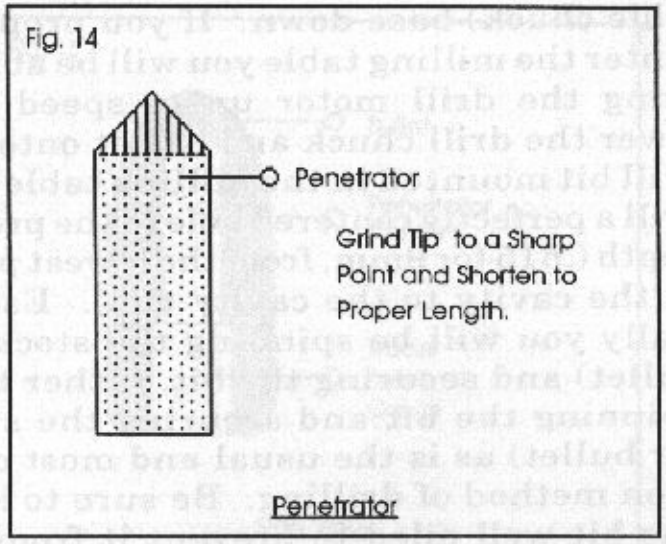
This ammunition can be manufactured using a drill press and a supply of machinist's dowel pins, assuming that you already have information on the manufacture of tracers. The size and length of the dowel pins will, of course, depend on the caliber and weight of the bullets being employed. The following information is based on 125gr., 9mm (parabellum), but it can be adapted to any caliber desired with a little trial and error. If one does not feel that he possesses the mechanical aptitude necessary to accurately adapt this information to another caliber of bullet, he probably should not attempt it!

Making the "penetrators"

(9mm) Penetrators are formed from 1/8" (.112) Tungsten Carbide dowel pins. First, let me warn you, you will waste an inordinate amount of hacksaw blades trying to saw through a Tungsten Carbide pin. The only way to accomplish this is to

grind them into sections. The only trouble with this is that you sometimes must waste an awful lot of steel in that most grinding wheels are relatively wide. You may find it worth your while to purchase a cutting wheel which is considerably thinner. Cut them into sections a bit longer than specified and sharpen them to a point by placing them in a hand drill and shaping them on a bench grinder. Then shorten them to the proper length (.325 in.) in the same way.

You should end up with something similar to the illustration in fig. 14. If not, well, there's always needlepoint!



Making the "Ballistics Vehicles"

As you may have already surmised, the "vehicles" are nothing more than specially prepared bullets. Preparation is as follows; First you must drill a dead centered hole in the base of the bullet of a size that the "penetrator" will snugly fit into. To do this you must mount a milling table attachment to the base of your drill press. Next, mount an auxilliary chuck onto the milling table attachment and into this chuck mount a drill bit (not a square end mill bit) of the proper size, in this case a 1/8" bit. You should end up with a firmly mounted 1/8" drill bit pointed straight up. If yours does not look like this, well, refer to the needlepoint reference above. Then place the bullet to be prepared in the drill press chuck (not the milling table chuck) base down. If you properly center the milling table you will be able to bring the drill motor up to speed and lower the drill chuck and bullet onto the drill bit mounted in the milling table and drill a perfectly centered hole to the proper depth (.515 for 9mm, from the lowest point in the cavity to the cavity rim). Essentially you will be spinning the stock (or bullet) and securing the bit, rather than spinning the bit and securing the stock (or bullet) as is the usual and most common method of drilling. Be sure to keep the bit well oiled to prevent it from becoming gummed up (any light oil may be used as you are only milling lead and nothing very hard such as tool steel, however you should try to avoid 'motor oil' as it can begin to burn and add to the gumming problem. Mil-spec 'light weapons oil' is ideal). After drilling the "penetrator channel, use a square end mill it to drill a fairly shallow tracer cavity (refer to Tracer Key for procedure). You may use any type of tracer that you choose. However, it is a good idea to use one of the self igniting varieties as there is already a shortage of space in the bullet and the self igniters require no ignition layer on the pellet. This allows more tracer compound in the given space, and hence a longer trace.

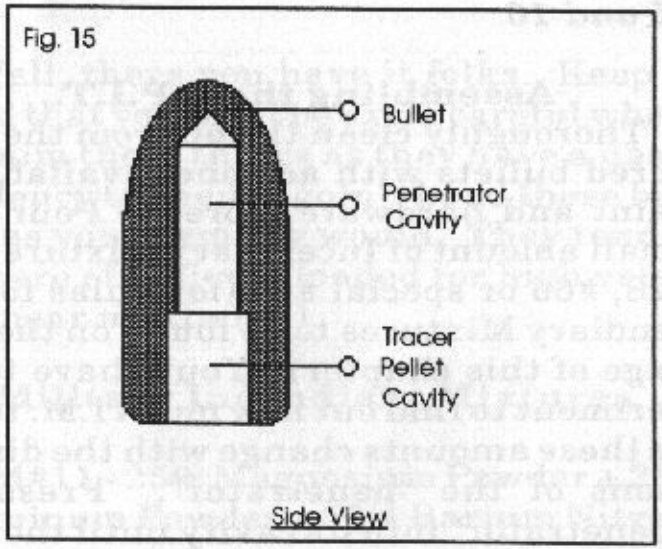
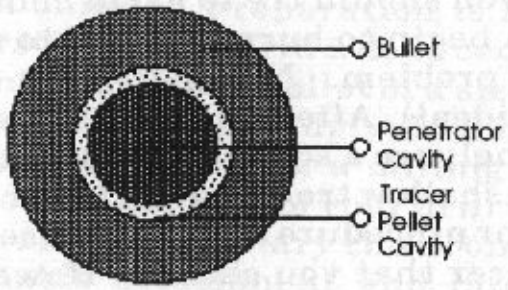


Fig. 16



Base View

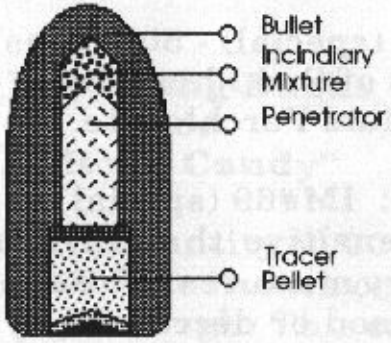
When all this is said and done you should end up with a finished product that resembles the bullets shown in *figs. 15 and 16.*

Assembling the A.P.I.T.

Thoroughly clean the oil from the prepared bullets with acetone (available at paint and hardware stores). Pour in a small amount of Incendiary Mixture #11, #28, #69 or special #69 (formulas for Incendiary Mixtures to be found on the last page of this chapter). You'll have to experiment to find out how much I.M. to use as these amounts change with the dimensions of the "penetrator". Press the "penetrator" into its cavity until the base

clears the tracer cavity. Load the tracer pellet into the tracer cavity (refer to Tracer Key for procedure). Your finished product should look like the diagram in *fig. 17.*

Fig. 17



Cut-a-way
Armor Piercing Incindiary Tracer Round

Well, there you have it folks. Keep in mind that you must be extra careful where you aim these things as they have a nasty tendency to keep-a-goin'. Load these bullets as you normally would. They tend to be more effective if loaded for high velocity (near maximum).

Military Incendiary Mixtures

IM#11 - 25% Magnesium Powder + 25% Aluminum Powder + 50% Barium Nitrate

IM#28 - 25% Magnesium Powder + 25% Aluminum Powder + 40% Barium Nitrate + 10% Potassium Perchlorate.

IM#69 - 25% Magnesium Powder + 25% Aluminum Powder + 40% Barium Nitrate + 10% Iron Oxide.

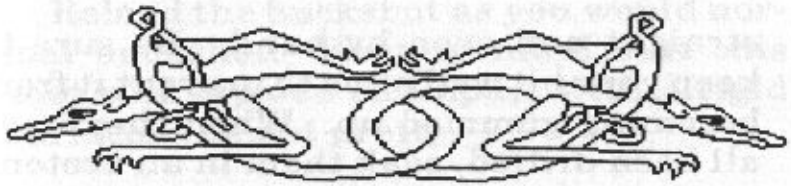
IM#69 (special) - 50 grains of IM#69 + 12 grains of Red Phosphorus + 10 grains of Potassium Perchlorate.

NOTE: IM#69 (special) is much more impact sensitive than any of the other incendiary mixtures. The sensitivity can be increased or decreased by increasing or decreasing the amount of Red Phosphorus used. Muzzle bursts may occur if this mixture is made too sensitive.

Duplex Loading

A small amount of IM#69 (special) can be loaded over IM#11, IM#28 or IM#69

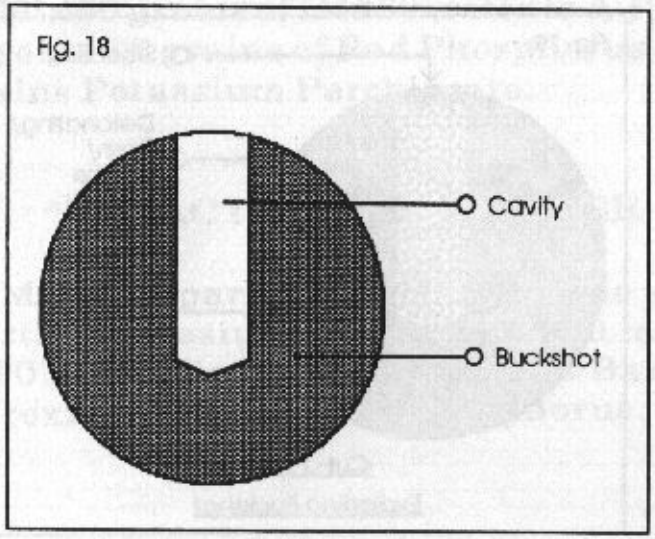
It may take you a few tries to get this just right, but the trick is not to give up! And don't shoot them at anything you can't afford to poke a big hole in!



CHAPTER 3

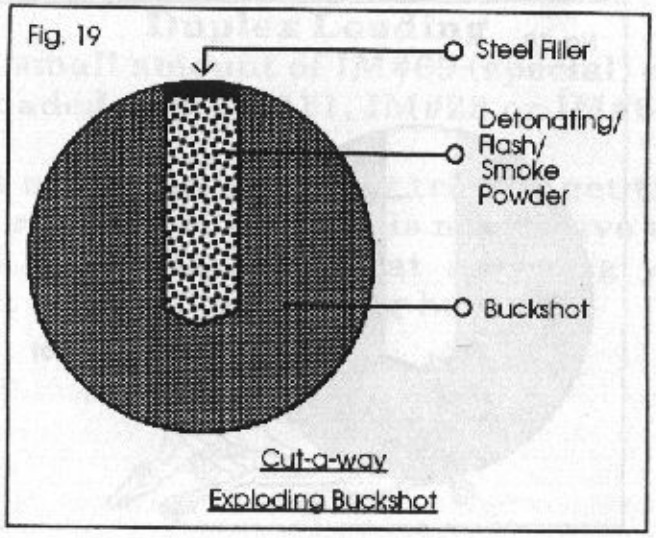
Exploding Bucks or "Rock Candy"

First obtain a quantity of .00 buckshot. Then drill a 1/8" hole in each one about 4/5ths of the way through. This can be done on a drill press or with a hand drill, though it is more difficult to get the holes



straight and even by hand. Be sure to keep your bit well oiled to prevent it from becoming gummed up. When they have all been drilled, soak them in an acetone bath to remove all traces of oil and grease. You should end up with buckshot like that in *fig. 18.*

Next fill and pack the cavity with Detonating Powder* or Flash Powder† or Impact Smoke Powder^. (WARNING! Do not forcefully ram the powder in! Instead, just tamp it in with a rod of the proper diameter until the cavity is full). Seal the cavity with Duro® E-Pox-E Steel Filler. The finished product is illustrated in *fig. 19.*



Reload the buckshot as you would normal buckshot. Keep in mind that this shot will explode on impact with a rigid surface. It's not pretty.

*DETONATING POWDER

Mix 9 parts Magnesium Powder + 13 parts Potassium Perchlorate + 2 parts Red Phosphorus. (CAUTION! As the name implies, this is shock sensitive powder. Make up only in small amounts and handle with extreme care!) The sensitivity of this compound can be increased or decreased by increasing or decreasing the amount of Red Phosphorus used.

†FLASH POWDER

Mix 50 grains of IM#69 (refer to A.P.I.T. sheet) + 12 grains of Red Phosphorus + 10 grains Potassium Perchlorate.

^IMPACT SMOKE POWDER

Mix 180 parts Hexachlorethane + 45 parts Magnesium Powder (80-100 mesh) + 90 parts Zinc Dust + 60 parts Barium Peroxide + 5 parts Red Phosphorus.

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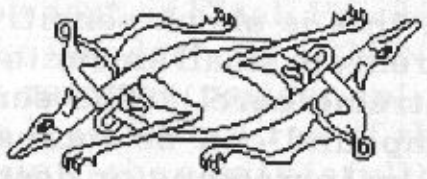
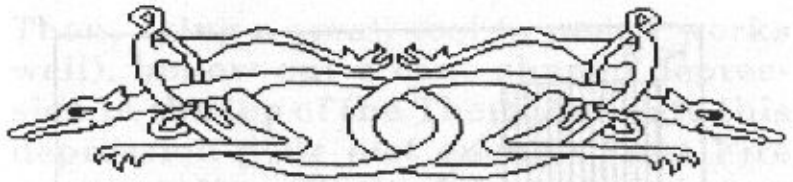


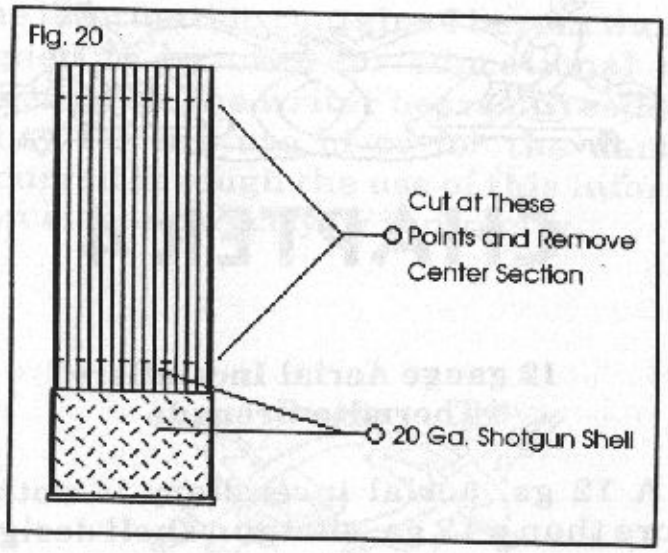


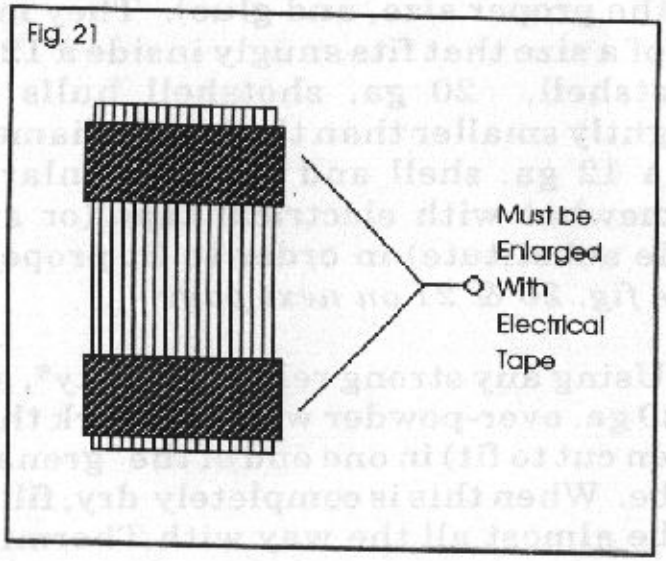
CHAPTER 4

12 gauge Aerial Incendiary Thermite Grenade

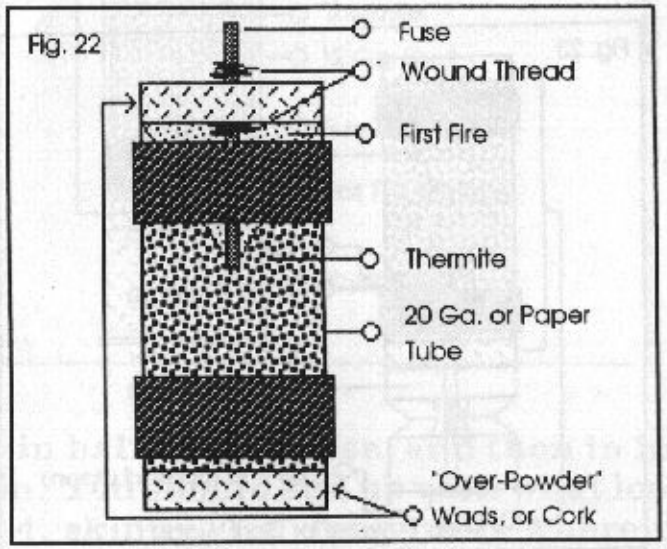
A 12 ga. aerial incendiary is nothing more than a 12 ga. shotgun shell designed to fire and ignite a thermite device. "Grenade" tubes can be made from empty plastic 20 ga. shotshell hulls, or they can be made from homemade paper tubes. (roll heavy paper around a waxed wooden dowel of the proper size, and glue). They must be of a size that fits snugly inside a 12 ga. shotshell. 20 ga. shotshell hulls are slightly smaller than the inside diameter of a 12 ga. shell and must be enlarged somewhat with electrical tape (or suitable substitute) in order to fit properly. *See fig. 20 & 21 on next page.*

Using any strong reliable Epoxy®, glue a 20 ga. over-powder wad (or a cork that's been cut to fit) in one end of the "grenade" tube. When this is completely dry, fill the tube almost all the way with Thermite*.



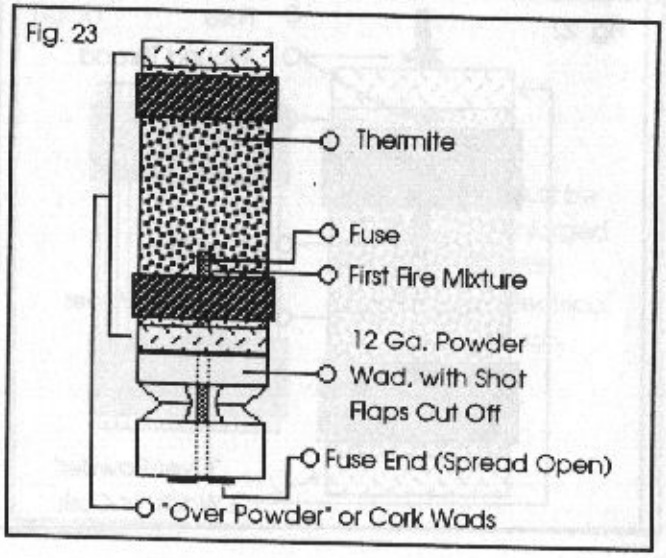


Then, using a small tool (a pencil works well), hollow out a cone shaped depression in the top of the Thermite. Into this depression pour just enough First Fire compound† to fill the tube until it is just about 3/16" short of the top of the tube. Drill a 3/32" hole in the center of a separate over-powder wad (or cork) and secure a short length of cannon fuse (available from SHOMER-TEC™, P.O. Box 2039, Bellingham, WA. 98227) in this hole by winding a small amount of thread around the fuse on either side of the wad, and then applying a dab of Epoxy to the winds. The exact length of the fuse protruding from either side of the wad will vary, depending on the person making

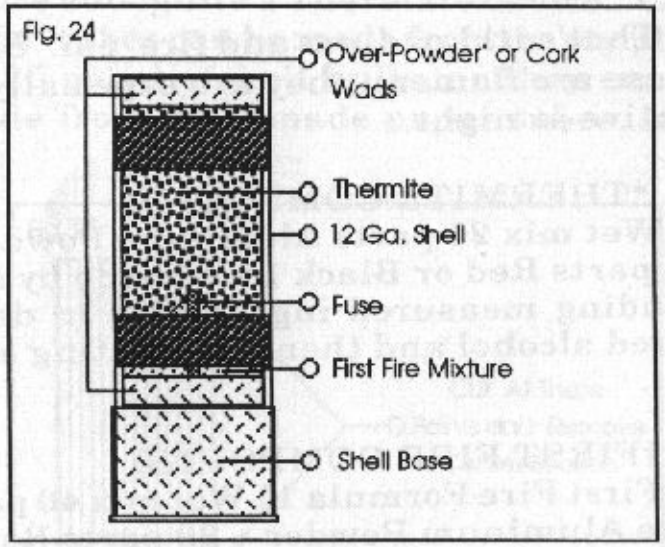


the "grenades". Use the illustration in fig. 22 as a guideline, and then tailor your own measurement from there. When this separate wad assembly is completely dry, glue it into the other side of the "grenade" tube by first working the fuse down into the Thermite/First Fire compounds, making sure that it is centered within the tube.

Again refer to the illustration for proper fuse alignment. The important thing is that; 1] that there is enough fuse to reach into the First Fire compound, and 2] that the end of the fuse does not wind up resting on the inside wall of the "grenade" tube. You should end up with a device like the one in fig. 22.



Next, obtain some 12 ga. plastic power wads and cut off the 'shot holding' flaps. Drill a 3/16" hole in the center of one and fit it down over the fuse protruding from the "grenade". Carefully Epoxy® the power wad onto the base of the "grenade". Secure the fuse to the bottom of the power wad by winding a small amount of thread around fuse just as it leaves the wad and then applying a tiny amount of Epoxy® to the wind. Trim the fuse down to about 1/4". Very carefully split the protruding



fuse in half length-wise, and then in half again. You should end up with what looks like 4, skinny, 1/4" long fuses where be-

fore there was 1, thick, 1/4" long fuse. Now, spread these 'petals' open to form a cross on the bottom of the power wad. This will fully expose the powder train. If you've done all this correctly you should have a device that resembles the one in fig. 23.

Load a 12 ga. shotgun shell with 3-4 grains of shotgun powder and just a pinch of black powder. Slide the "grenade" down into the 12 ga. shell. You should end up with an Aerial Thermite round like the one in fig. 24.

That's it! Load' em and fire' em. Since these are flamers, they are especially effective at night.

*THERMITE COMPOUND
Wet mix 25 parts Aluminum Powder + 75 parts Red or Black Iron Oxide by suspending measured ingredients in denatured alcohol and then evaporating alcohol.

†FIRST FIRE COMPOUND
First Fire Formula 1] Wet mix 40 parts fine Aluminum Powder + 29 parts Red or Black Iron Oxide + 31 parts Barium Peroxide.

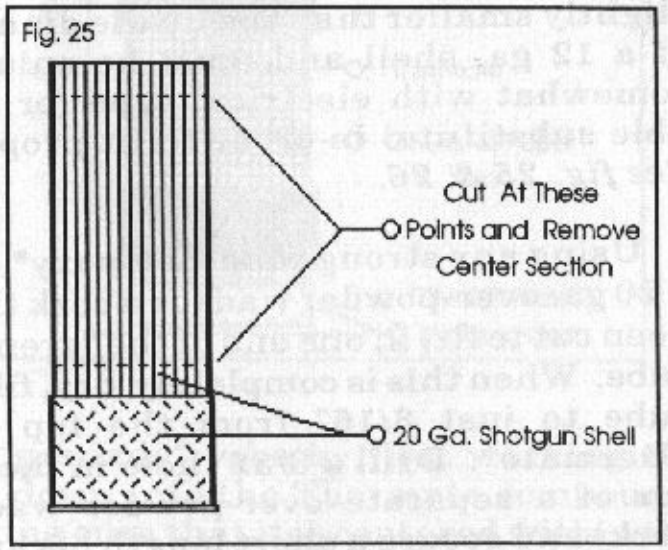
First Fire Formula 2] Wet mix 9 parts Magnesium Powder + 91 parts Barium Peroxide.

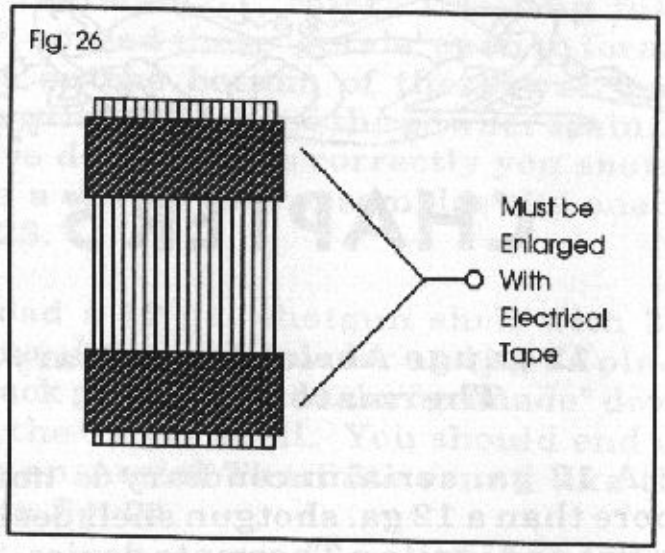
CHAPTER 5

12 gauge Aerial Incendiary Thermate Grenade

A 12 ga. aerial incendiary is nothing more than a 12 ga. shotgun shell designed to fire and ignite a Thermate device. "Grenade" tubes can be made from empty plastic 20 ga. shotshell hulls, or they can be made from homemade paper tubes. (roll

Fig. 25

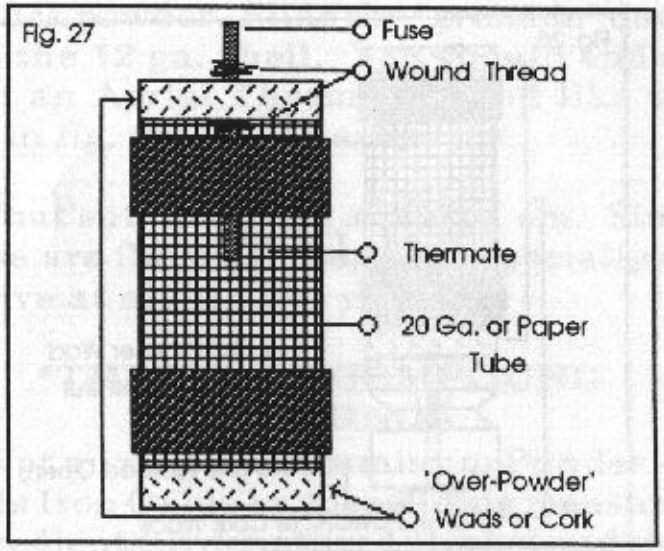




heavy paper around a waxed wooden dowel of the proper size, and glue). They must be of a size that fits snugly inside a 12 ga. shotshell. 20 ga. shotshell hulls are slightly smaller than the inside diameter of a 12 ga. shell and must be enlarged somewhat with electrical tape (or suitable substitute) in order to fit properly. *See fig. 25 & 26.*

Using any strong reliable Epoxy[2], glue a 20 ga. over-powder wad (or a cork that's been cut to fit) in one end of the "grenade" tube. When this is completely dry, fill the tube to just 3/16" from the top with Thermate*. Drill a 3/32" hole in the center of a separate over-powder wad (or cork) and secure a short length of cannon

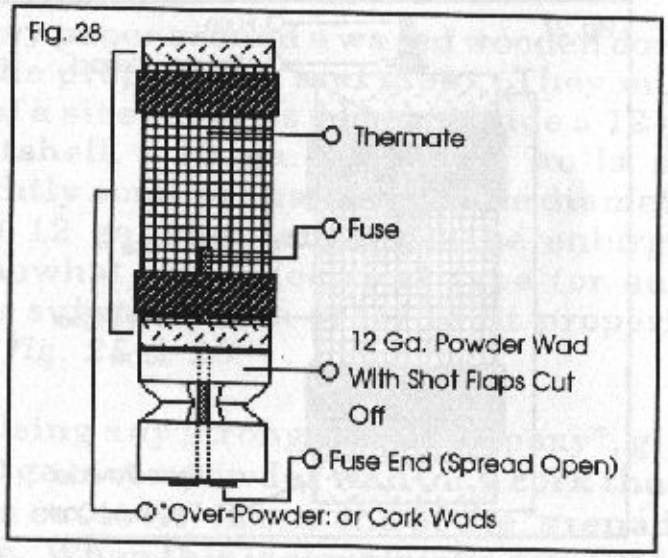
fuse (available from SHOMER-TEC™, P.O. Box 2039, Bellingham, WA. 98227) in this hole by winding a small amount of thread around the fuse on either side of the wad, and then applying a dab of Epoxy to the winds. The exact length of the fuse protruding from either side of the wad will vary, depending on the person making the "grenades". Use the illustration in fig. 27 as a guideline, and then tailor your own measurement from there. When this separate wad assembly is completely dry, glue it into the other side of



the "grenade" tube by first working the fuse down into the Thermate compound, making sure that it is centered within the

tube. Again refer to the illustration for proper fuse alignment. The important thing is that; 1] that there is enough fuse to reach into the Thermate compound, and 2] that the end of the fuse does not wind up resting on the inside wall of the "grenade" tube. You should end up with a device like the one in *fig. 27.*

Next, obtain some 12 ga. plastic power wads and cut off the 'shot holding' flaps. Drill a 3/16" hole in the center of one and fit it down over the fuse protruding from the "grenade". Carefully Epoxy® the power



wad onto the base of the "grenade". Secure the fuse to the bottom of the power wad by winding a small amount of thread around fuse just as it leaves the wad and

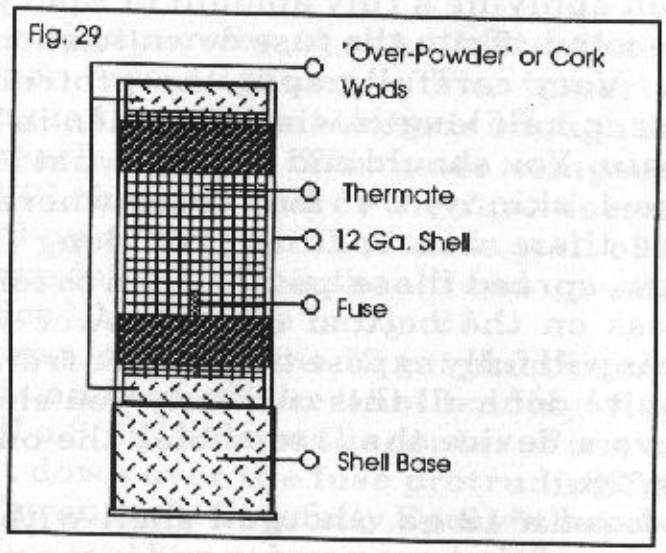
then applying a tiny amount of Epoxy® to the wind. Trim the fuse down to about 1/4". Very carefully split the protruding fuse in half length-wise, and then in half again. You should end up with what looks like 4, skinny, 1/4" long fuses where before there was 1, thick, 1/4" long fuse. Now, spread these 'petals' open to form a cross on the bottom of the power wad. This will fully expose the powder train. If you've done all this correctly you should have a device that resembles the one in fig. 28.

Load a 12 ga. shotgun shell with 3-4 grains of shotgun powder and just a pinch of black powder. Slide the "grenade" down into the 12 ga. shell. You should end up with an Aerial Thermite round like the one in *fig. 29.* *(See next page)*

That's it! Load' em and fire' em. Since these are flamers, they are especially effective at night. See ya there!

*THERMATE COMPOUND (FLAMING)

Wet mix 3 parts Aluminum Powder + 6 parts Iron Oxide by suspending measured ingredients in denatured alcohol and then evaporating alcohol.



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Notes